# Common Aviation Command and Control System (CAC2S)

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***CAC2S POC:***
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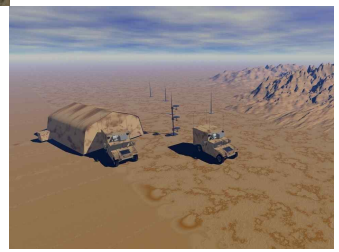
# CAC2S

- **Cornerstone MACCS Program**
- **System Mission: To provide the ACE Commander with the necessary hardware, software, equipment, and facilities to effectively command, coordinate, and control MAGTF air operations in service, Naval, Joint, and Joint/Multinational operations.**
- **CAC2S will:**
  - **Consolidate MACCS functions on common C2 platform**
  - **Reduce footprint, as well as lift and logistics requirements**
  - **Provide modernization effort consistent with EMW concept**
  - **Host Marine Corps Cooperative Engagement Capability (CEC)**
- **Contract Award to Raytheon Naval Systems Integration - May 2001**
- **IOC FY07**



# Marine Aviation C2 Capability

**Existing MACCS Agencies**

TAOC

TACC

DASC

LAAD C2

MATCALS

**Existing and Future Capabilities**

TBMCS

SENSORS

TADILS AFATDS

MSBL

GCCS

GBS CEC

COMMUNICATIONS

DII COE

## CAC2

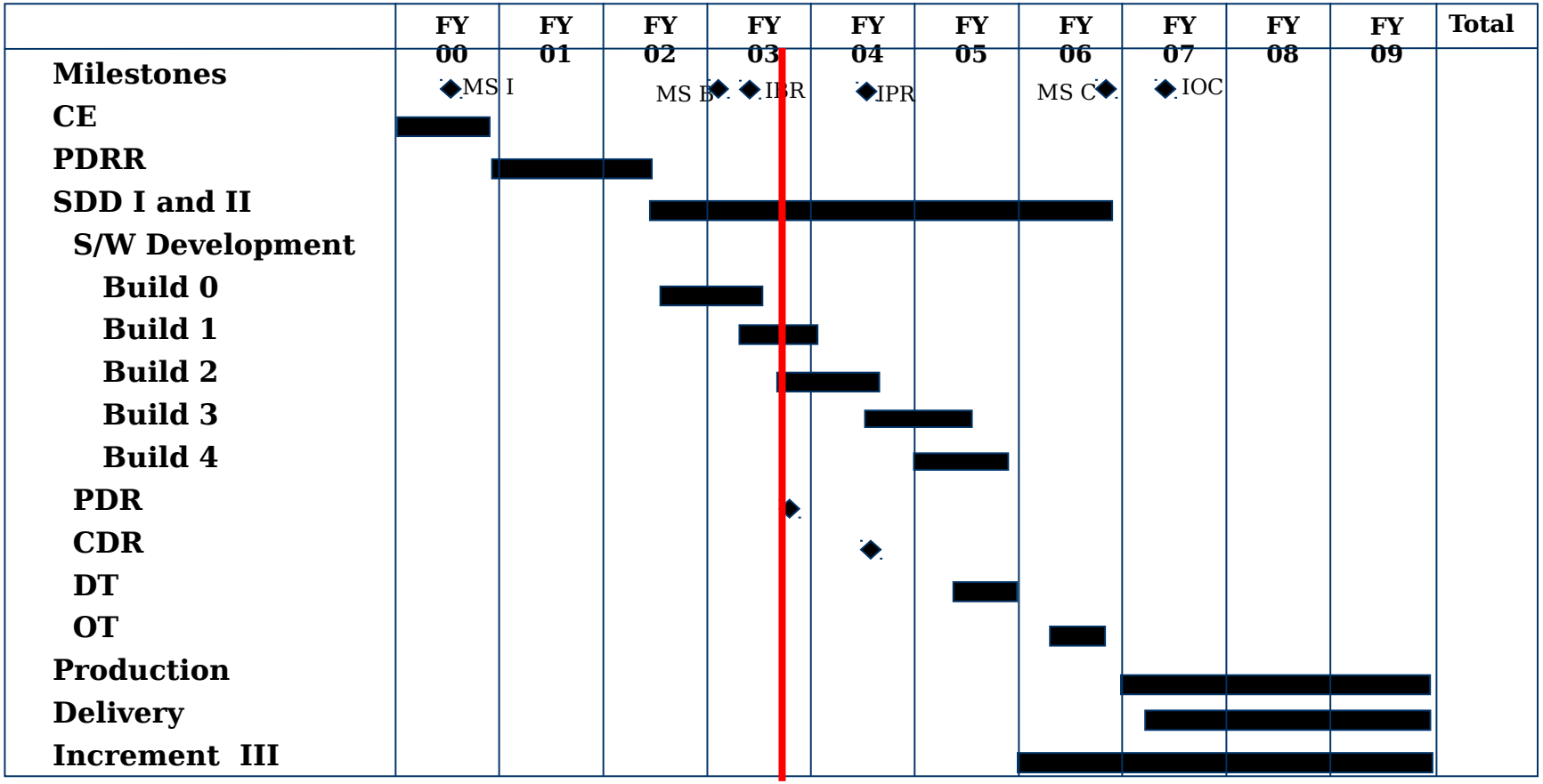
**PROCESSING & DISPLAY**

**COMMUNICATIONS**

**SENSORS/WEAPONS INTERFACE**

**FACILITY INFRASTRUCTURE**

# CAC2S Macro Program Schedule



# Raytheon CAC2S Team

Raytheon

- N&MIS, C3I, RTSC
- PROGRAM MANAGEMENT
- SYSTEMS ENGINEERING
- SYSTEMS INTEGRATION
- TOC LEADERSHIP
- INFRASTRUCTURE
- SIAP (SSDS and CEC Components)
- S/W DEVELOPMENT

KONGSBERG
DEFENCE & AEROSPACE

- WEAPON CONTROL

GENERAL DYNAMICS
Decision Systems

- COMMUNICATIONS
- S/W DEVELOPMENT
- TECHNOLOGY INSERTION
- AIRSPACE MANAGEMENT
- MULTI-LEVEL SECURITY
- INFRASTRUCTURE

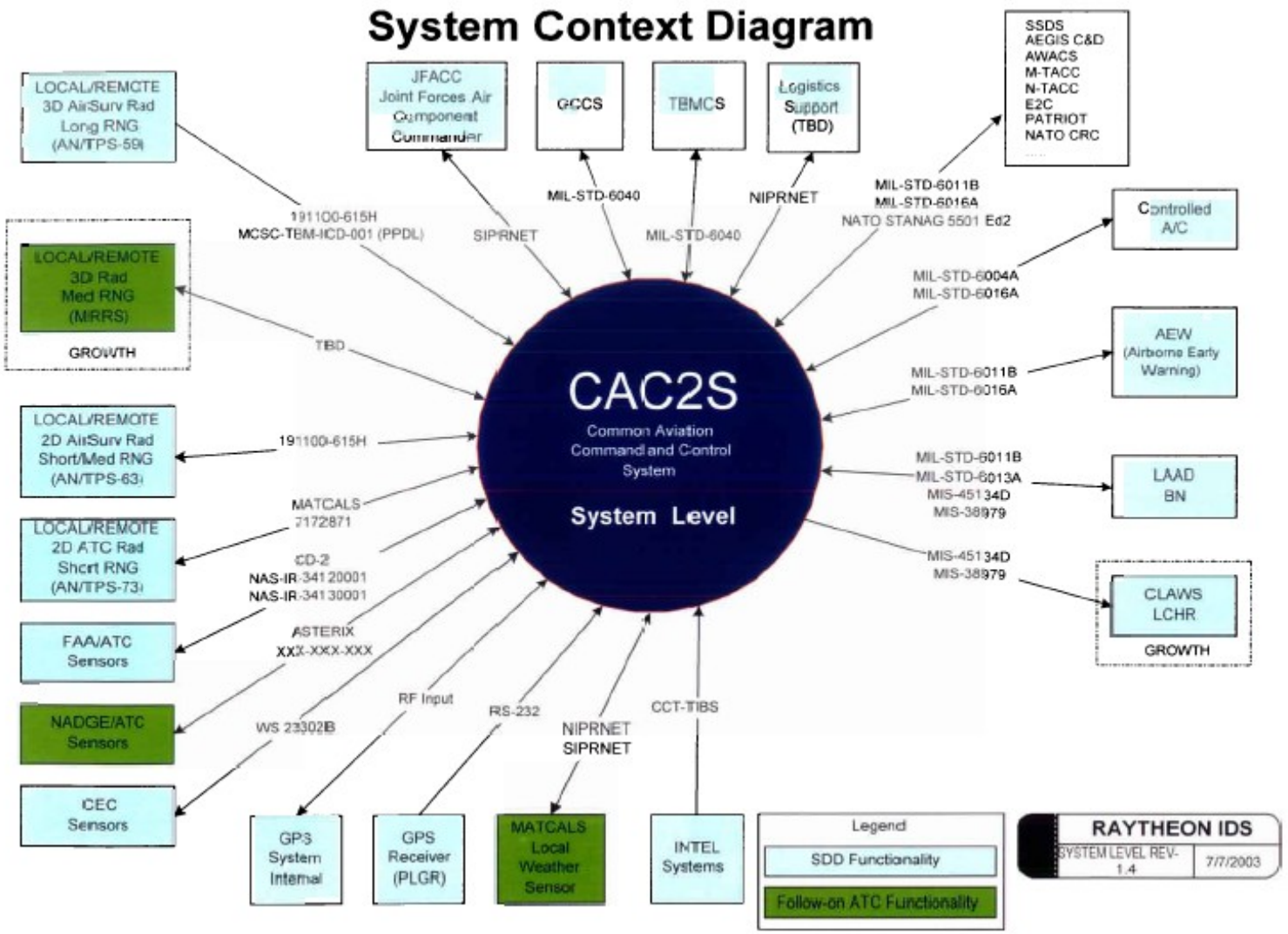
Sensis CORPORATION

- SENSOR INTEGRATION

Gallium

- HUMAN SYSTEM INTERFACE

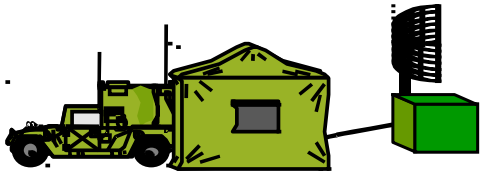
# System Interfaces



# Operational Configurations

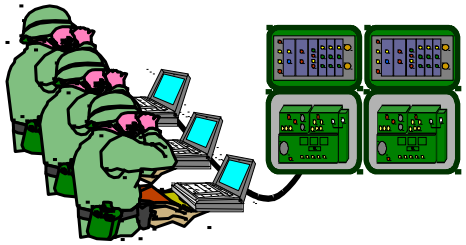
## MARINE PORTABLE

LAPTOPS FOR INITIAL MISSION PLANNING
CONTINUE MISSION PLANNING IN TRANSIT
INITIAL CAPABILITY ASHORE
LIAISON REQUIREMENTS
MAN-PACK COMMUNICATIONS



## MACCS NODE

HMMWV MOUNTED SHELTERS- HIGH MOBILITY
REDUCED LIFT & LOGISTICS FOOTPRINT
RAPID DEPLOYMENT AND IMMEDIATE EMPLOYMENT
PRE-CONFIGURED FOR MISSION REQUIREMENTS
INCREASED CAPABILITY AS AIR CONTROL REQMTS INCREASE
SENSOR EMPLOYMENT AND INTEROPERABILITY
ACCESS TO THEATER, NATIONAL, TACTICAL DATA SOURCES
REMOTED COMMUNICATIONS AND RADARS



## MARINE TRANSPORTABLE

TASK ORGANIZED FOR MISSION REQUIREMENTS
OPERATIONAL TRANSIT CASE CONFIGURATION
MORE AIR CONTROL CAPABILITY THAN MARINE PORTABLE
SUPPORTED BY MAN-PACK OR VEHICULAR COMMUNICATIONS
PLUG INTO SHIPBOARD C4I SYSTEMS- SITUATIONAL AWARENESS
FORM FUNCTIONAL AIR CONTROL CELLS
HIGH MOBILITY AND TRANSPORTABILITY
REACH-BACK CAPABILITY- REDUCED FOOTPRINT ASHORE
AIRBORNE TRANSPORT AND OPERATIONAL CAPABILITY

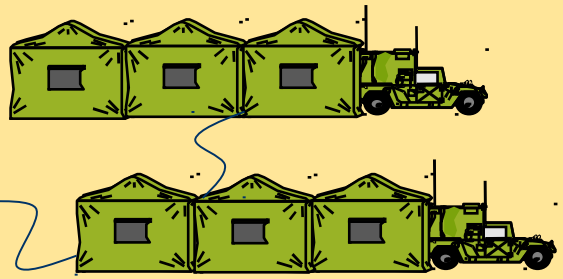
## MULTI-FUNCTION MACCS NODE

EXTENDING NAVAL C4I ASHORE OR STAND ALONE OPERATIONS
PLANNING AND EXECUTION OF AVIATION OPERATIONS
TASK ORGANIZED TO MEET COMMANDER'S INTENT
SINGLE OR MULTI-FUNCTION MACCS NODES
FULL ARRAY OF AIR CONTROL FUNCTIONS
DECISION-MAKING AIDS AND INTEGRATED OPERATOR DISPLAYS
SENSOR INTEGRATION AND JOINT INTEROPERABILITY
CAPABLE OF DETACHING SHELTERS TO ECHELON
REDUCED LOGISTICS AND MAINTENANCE REQUIREMENTS
REMOTED COMMUNICATIONS/DATA/SENSORS

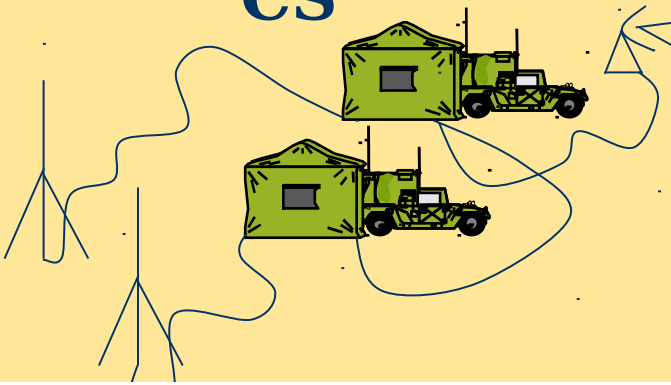
# CAC2S

| | PDS | SDS | CS |
|---|---|---|---|
| TACC | 3 | 1 | 2 |
| TAOC | 2 | 2 | 2 |
| DASC | 1 | 1 | 1 |
| LAAD | TBD | TBD | TBD |

**PDS**

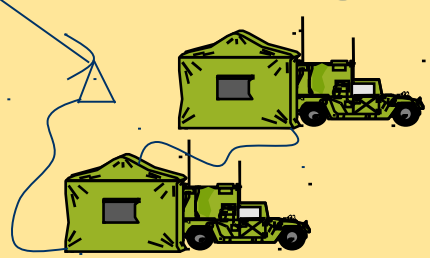


**CS**



**wired or wireless connectivity between subsystems**

**SDS**



**All nodes are a comprised of combinations of:**

- **-common hardware**
- **-common software**

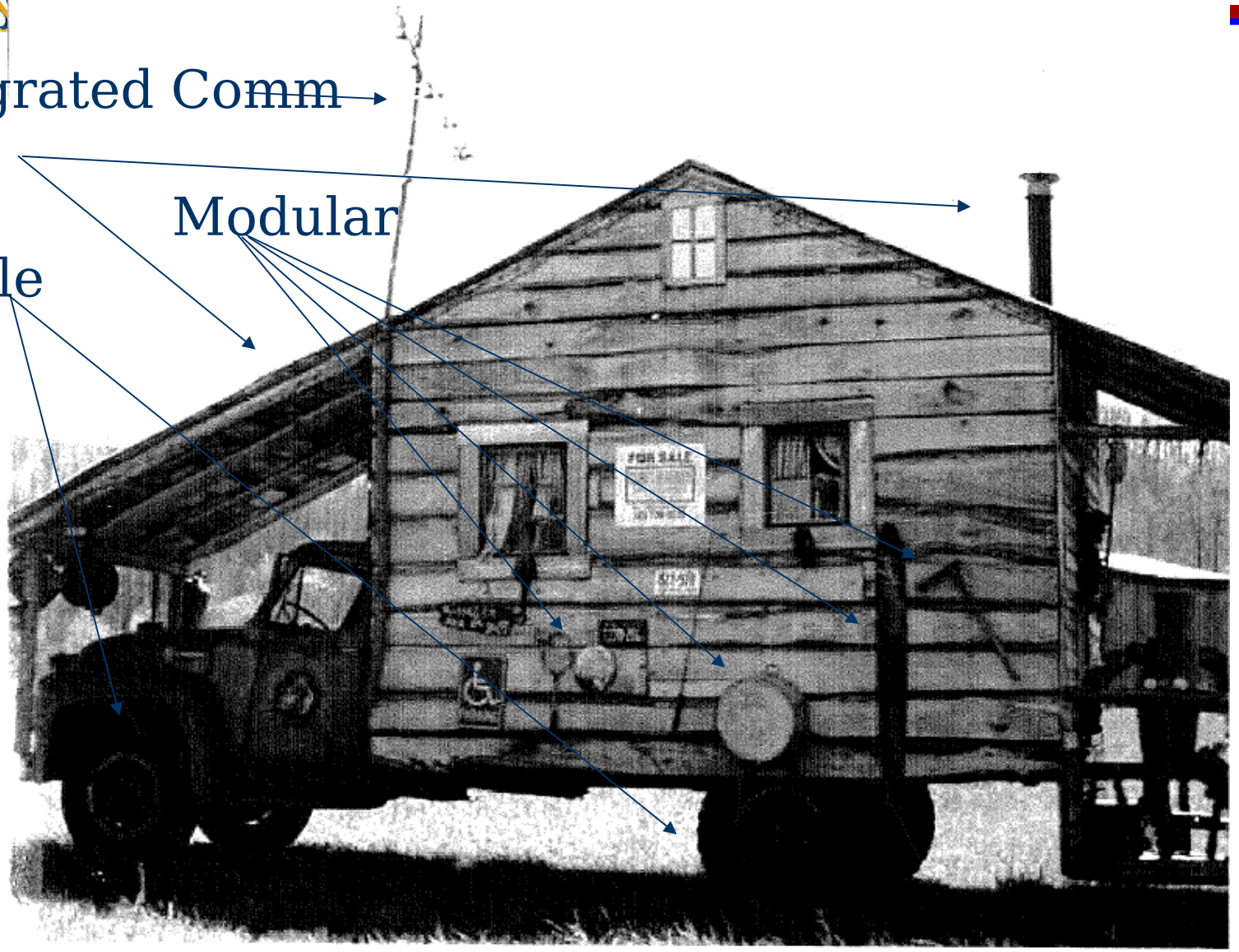
# Notional CAC2S

Integrated Comm

ECU

Modular

Mobile



# Common System Platform

**S788 Modified Shelter**
- Power Distribution Unit
- 19” Racks
- SEP / TIP / PEP panels

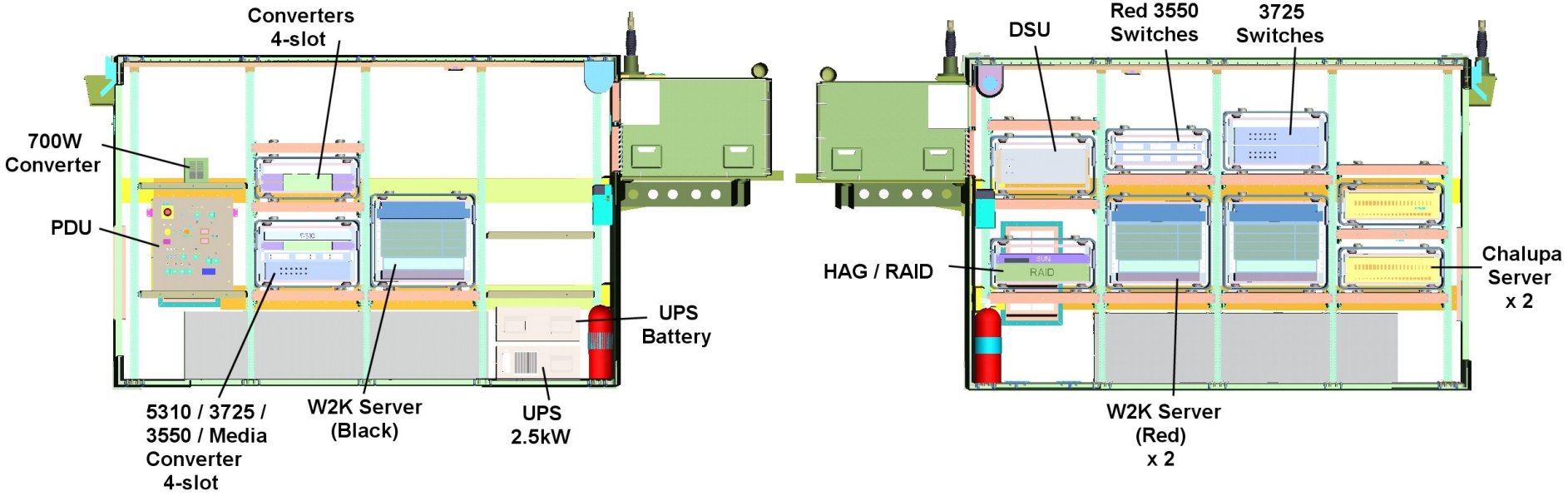
**F18H-3SB Keco ECU**

**M1097A2 Heavy HMMWV**

**High Mobility Trailer (HM**

**PDS, CS and SDS Subsystems Integrated On A Common Hardv**

# Processing Display Subsystem (PDS)

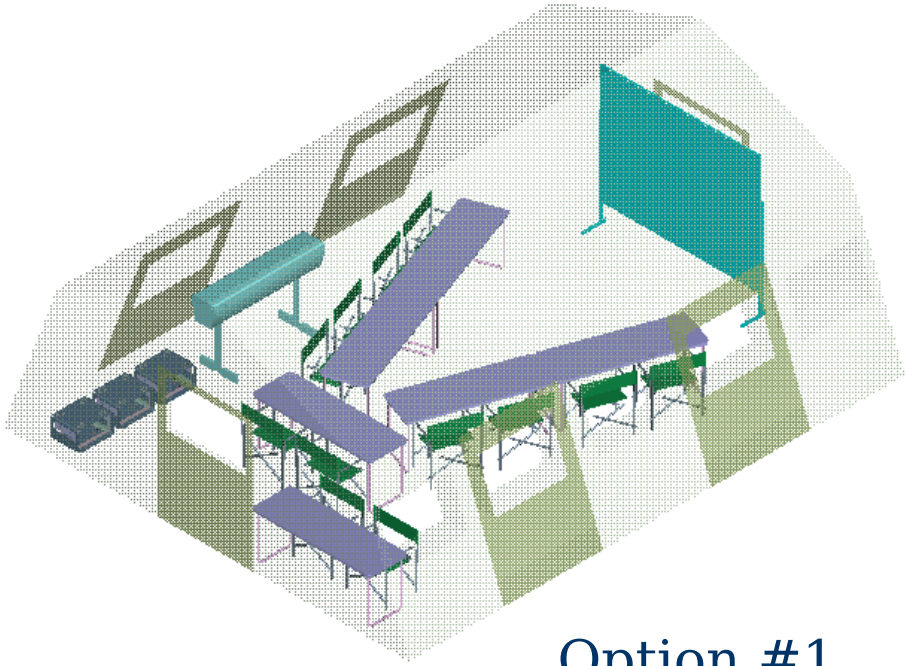



Roadside

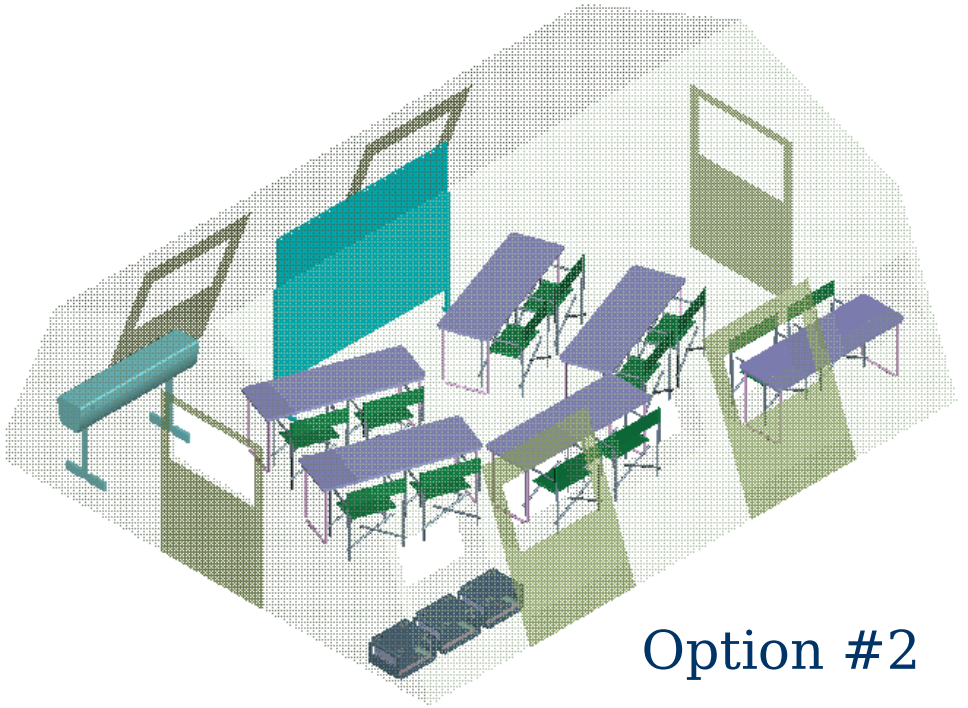
Curbside

# Processing Display Subsystem (PDS)

- Preliminary User Support Equipment 7/3/03, Rev A



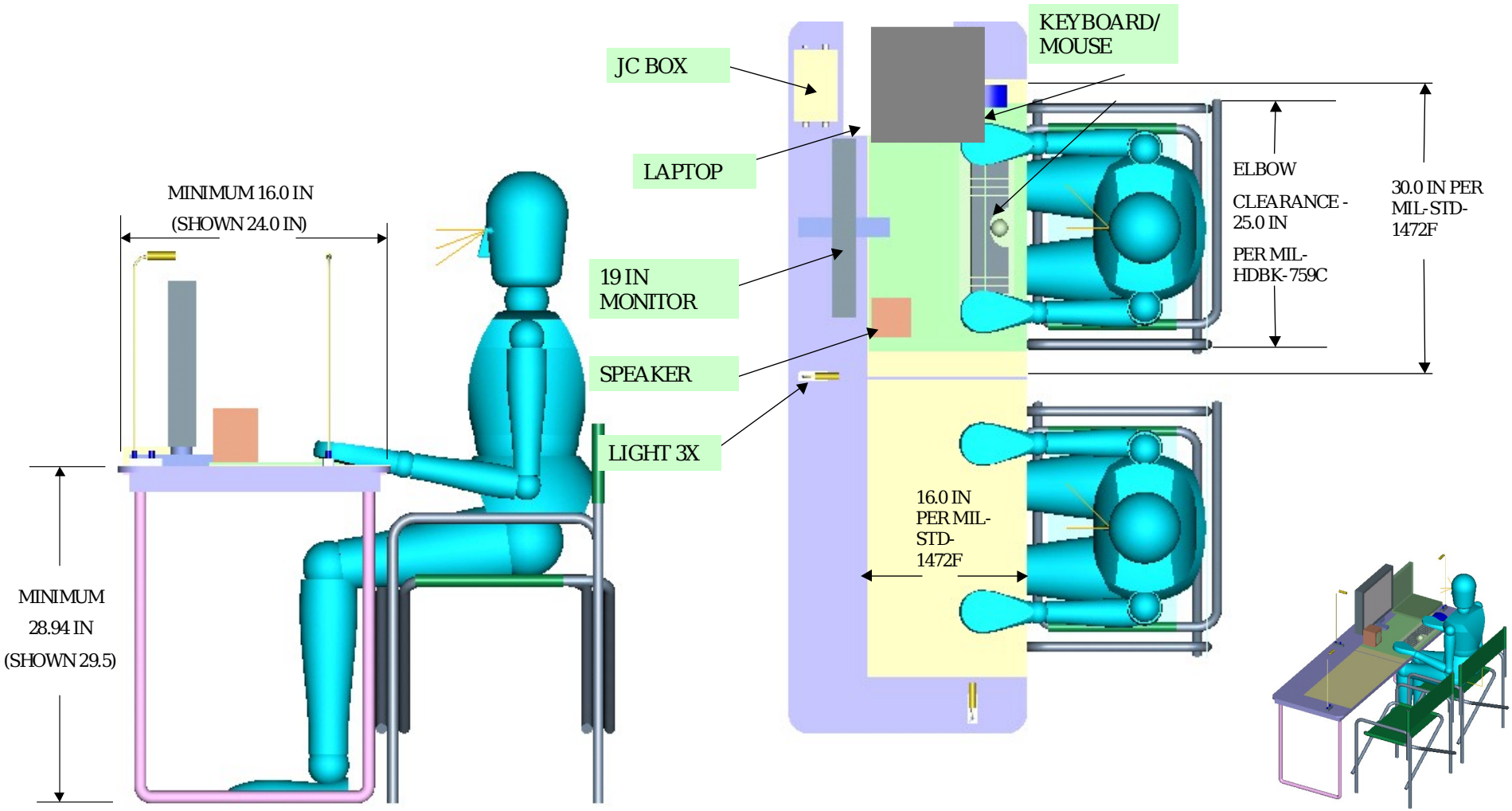
Option #1



Option #2

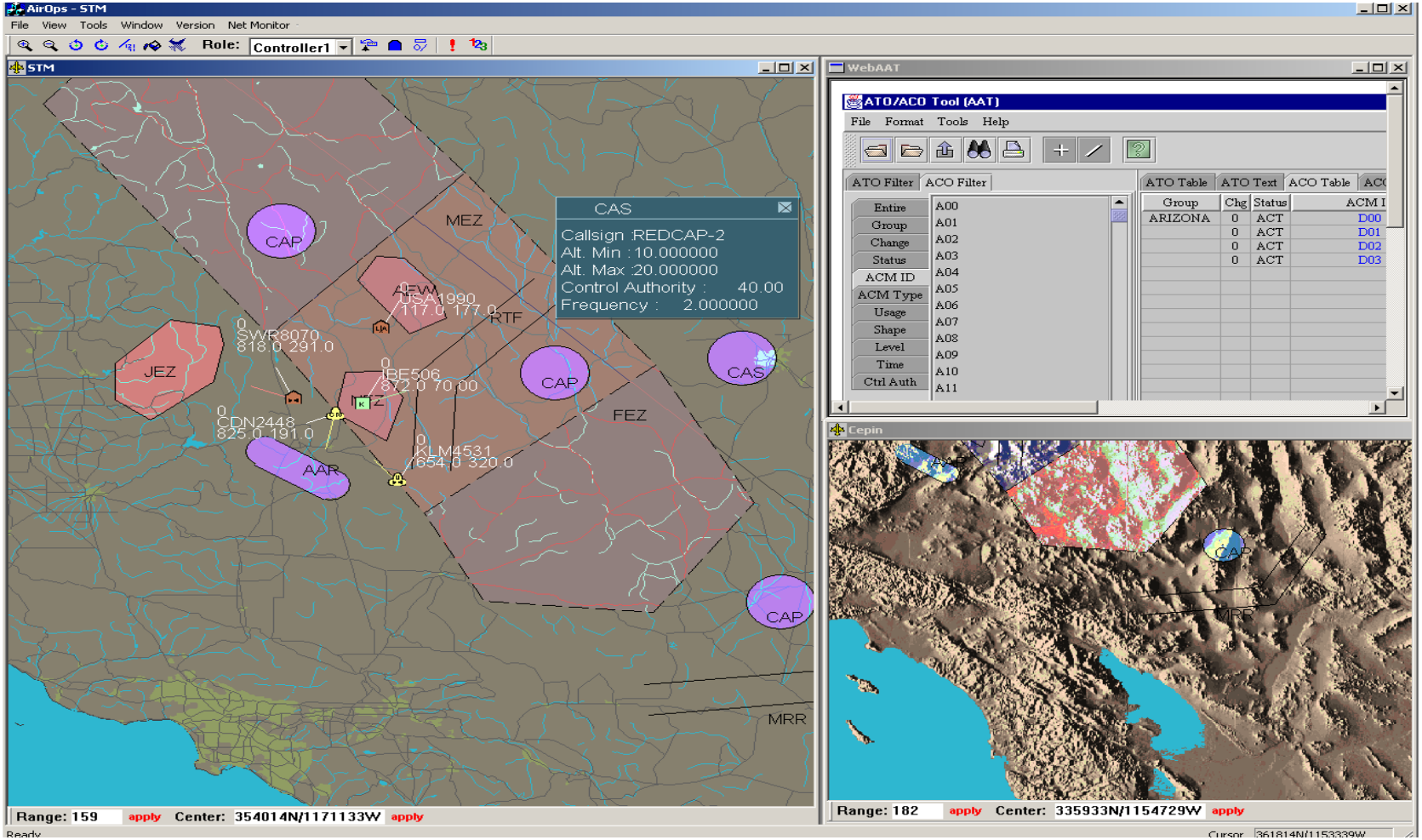
**Two Layouts Proposed and Evaluated For Human Factors E**

# Processing Display Subsystem (PDS)



# Processing Display Subsystem

## Human Systems Interface (HSI) 2D



# Logistics

- Maintenance Concept
  - Two level (O&D)
- Supportability Analysis
  - Supportability Plan (formally called ILSP) currently staffed
  - LORA & FMEA underway
- Manpower and Training
  - Actively Coordinate with TECOM and MCCES
  - Government Manpower and Training Plan being conducted
    - Recommended Training Tasks
    - Recommended Training Hardware
    - Recommended Training Media
    - Simulation/Simulator Recommendation
    - Impacts on Current Force Structure
  - Raytheon under contract to produce a Training Package
    - Interactive Courseware

# Logistics (Cont'd)

- Supply Support
  - Provisioning Guidance Conference conducted in Feb 03
  - Expected to be mixture of Organic and Contractor Logistics Support
- Technical Manuals
  - Interactive Electronic Technical Manuals (IETMs) under development (MKI is Tech Manual LEM)

# Benefits of CAC2S

- Commonality
  - Identical systems
  - MOS
  - Training
  - Reduced life cycle costs
- Improvement in technology
  - Fusion of real-time/near real-time/nonreal-time data on a common display
  - Integrated Full-System Simulation Capability
  - System architecture accommodates technology refreshes/advances
- Modularity/Scalability
  - Reduced Footprint
  - Improved Mobility

# CAC2S Issues

- Fielding
  - Vertical vice horizontal
  - TEEP Impacts
- MACCS Organizational Challenges
  - System Admin Personnel
  - New/Combined MOS's
  - MACCS Transition Task Force
- MCCES
  - Multi-Functional Node Training

# *Questions?*